

CLAIMS

1. A power source device for a working machine, comprising:

a hydraulic pump for driving a hydraulic actuator;

a power machine functioning as a generator and an electric motor;

an engine which serves as a common power source of the hydraulic pump and the power machine, the hydraulic pump and the power machine being connected in parallel to the engine; and

an electric power storage device for storing a power thereof by the generator function of the power machine, the power machine being driven by a discharge power of the power storage device to perform the motor function, the power source device comprising:

(A) required actuator power detecting means for detecting a power required by the hydraulic actuator;

(B) charge amount detecting means for detecting a charge amount of the power storage device;

(C) power storage device power setting means for setting a charge power and the discharge power of the power storage device in accordance with a change in the charge amount of the power storage device so as to maintain the charge amount of the power storage device in a predetermined range;

(D) engine power setting means for setting a power of the engine in accordance with the charge amount of the power storage device;

(E) power distributing means for determining power distribution between the engine and the power machine based on the required actuator power, the charge power and the discharge power of the power storage device set by the power storage device power setting means, and the power of the engine set by the engine power setting means; and

(F) power machine controlling means for controlling the power of the power machine based on the power distribution determined by the power distributing means.

2. The power source device according to claim 1, wherein

the required actuator power detecting means is adapted to detect the required actuator power based on a discharge pressure, a discharge rate, and a rotational speed of the hydraulic pump.

3. The power source device according to claim 1 or 2, further comprising temperature detecting means for detecting a temperature of the power storage device, wherein

the power storage device power setting means is adapted to set the charge power and the discharge power of the power

storage device to decrease the charge power and the discharge power with decrease in the temperature of the power storage device.

4. The power source device according to any one of claims 1 through 3, wherein

the engine setting means is adapted to define an upper limit and a lower limit of the power of the engine, and to set the power of the engine in a range covering the lower limit and the upper limit.

5. The power source device according to any one of claims 1 through 4, wherein

the power distributing means is adapted to correct the power of the engine set by the engine setting means so that the engine power is varied in accordance with a dynamic characteristic of the engine.